

Claims

- [c1] An automotive ejection prevention assembly comprising:
an airbag mounted within the beltline of a vehicle door,
said airbag having an airbag stored condition and an
airbag deployed position, said airbag expanded vertically
upwards from said beltline when in said airbag deployed
position;
a cover cloth assembly mounted within a window frame
of said vehicle door, said cover cloth assembly having a
vertical restraint edge mounted to a vertical portion of
said window frame and a horizontal restraint edge
mounted to said beltline, said cover cloth assembly in-
cluding an inner cloth surface and an outer cloth surface
joined to form an internal pocket, said airbag positioned
within said internal pocket;
wherein said cover cloth assembly fills a portion of said
window frame upon said airbag entering said airbag de-
ployed position, said cover cloth assembly preventing
occupant ejection through said window frame.
- [c2] An automotive ejection prevention assembly as de-
scribed in claim 1, wherein said airbag is positioned in-
board of said window frame.

- [c3] An automotive ejection prevention assembly as described in claim 1, wherein said airbag is positioned outboard of said window frame.
- [c4] An automotive ejection prevention assembly as described in claim 1, wherein said cover cloth assembly comprises a triangular cloth assembly.
- [c5] An automotive ejection prevention assembly as described in claim 1, wherein said cover cloth assembly is mounted to said window frame using at least three triangular anchor points.
- [c6] An automotive ejection prevention assembly as described in claim 1, further comprising:
 - a side-impact sensor;
 - a controller in communication with said side-impact sensor and said airbag, said controller deploying said airbag in response to said side-impact sensor.
- [c7] An automotive ejection prevention assembly as described in claim 6, further comprising:
 - a rollover sensor, said controller in communication with said rollover sensor and deploying said airbag in response to said rollover sensor.
- [c8] An automotive ejection prevention assembly as de-

scribed in claim 1, wherein said airbag is deployed at a deployment angle greater than 5 degrees relative to a window plane within said window frame.

- [c9] An automotive ejection prevention assembly as described in claim 1, wherein said cover cloth assembly generates an inward force on a passenger protruding through said window frame.
- [c10] An automotive ejection prevention assembly comprising:
 - an airbag mounted within the beltline of a vehicle door, said airbag having an airbag stored condition and an airbag deployed position, said airbag expanded vertically upwards from said beltline when in said airbag deployed position;
 - a rollover sensor;
 - a controller in communication with said rollover sensor and said airbag, said controller deploying said airbag in response to said rollover sensor;
 - wherein said cover cloth assembly fills a portion of said window frame upon said airbag entering said airbag deployed position, said cover cloth assembly preventing occupant ejection through said window frame.
- [c11] An automotive ejection prevention assembly as described within claim 10, further comprising:
 - a cover cloth assembly mounted within a window frame

of said vehicle door, said cover cloth assembly having a vertical restraint edge mounted to a vertical portion of said window frame and a horizontal restraint edge mounted to said beltline, said cover cloth assembly including an inner cloth surface and an outer cloth surface joined to form an internal pocket, said airbag positioned within said internal pocket.

- [c12] An automotive ejection prevention assembly as described in claim 10, wherein said airbag is positioned inboard of said window frame.
- [c13] An automotive ejection prevention assembly as described in claim 10, wherein said airbag is positioned outboard of said window frame.
- [c14] An automotive ejection prevention assembly as described in claim 10, further comprising:
a side-impact sensor, said controller in communication with said side-impact sensor and deploying said airbag in response to said side-impact sensor.
- [c15] An automotive ejection prevention assembly as described in claim 11, wherein said cover cloth assembly is mounted to said window frame using at least three triangular anchor points.
- [c16] An automotive ejection prevention assembly as de-

scribed in claim 10, wherein said airbag generates an inward force on a passenger protruding through said window frame when said airbag moves into the airbag deployed position.

[c17] A method of preventing passenger ejection during a vehicular rollover comprising:
storing an airbag within the beltline of a vehicle door, said airbag having an airbag stored condition and an airbag deployed position;
monitoring a rollover sensor to determine vehicle orientation;
deploying said airbag vertically upwards from said beltline into a window frame such that said airbag enters said airbag deployed position when said vehicle indicates a rollover;
preventing occupant ejection through said window frame by filling said window frame with said airbag.

[c18] A method as described in claim 17, further comprising:
placing said airbag within a cover cloth assembly mounted within a window frame of said vehicle door, said cover cloth assembly having a vertical restraint edge mounted to a vertical portion of said window frame and a horizontal restraint edge mounted to said beltline, said cover cloth assembly including an inner cloth surface and an outer cloth surface joined to form an internal

pocket, said airbag positioned within said internal pocket.

[c19] A method as described in claim 18, further comprising:
securing said cover cloth assembly wherein to said window frame using at least three triangular anchor points.

[c20] A method as described in claim 17, further comprising:
monitoring a side-impact sensor; and
deploying said airbag vertically upwards from said belt-line into a window frame such that said airbag enters said airbag deployed position when said vehicle indicates side-impact.